Practitioner's Docket No. 1264   *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s):   Bryce A. Jones

For (title):   METHOD AND APPARATUS FOR PROCESSING WEB CALLS IN A WEB CALL
                CENTER

1.   Type of Application

This transmittal is for an original (nonprovisional) application.

CERTIFICATION UNDER 37 C.F.R. 1.10*
*(Express Mail label number is **mandatory**.)*
(Express Mail certification is optional.)

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on this date __1-5-00__, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number <u>EL393719183US</u>, addressed to the: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

<u>   Laura S. Mellblom   </u>
(type or print name of person mailing paper)

Signature of person mailing paper

WARNING: *Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.*

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*"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.*

2. **Papers Enclosed**

    A.   Required for filing date under 37 C.F.R. 1.53(b) (Regular) or 37 C.F.R. 1.153 (Design) Application

9 Page(s) of Specification
18 Page(s) of Claims
4 Sheet(s) of Drawing(s)–Formal

    B.   Other Papers Enclosed

2 Page(s) of declaration and power of attorney
1 Page(s) of abstract
2 Page(s) of Assignment and Agreement in an Application for Letters Patent of the United States of America

3. **Declaration or Oath**

    Enclosed

    Executed by:
    ●   inventor.

4. **Inventorship Statement**

The inventorship for all the claims in this application is the same.

5. **Language**

English

6. **Assignment**

An assignment of the invention to Sprint Communications Company, L. P. is attached. A separate "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" is also attached.

7.	Fee Calculation (37 C.F.R. 1.16)

	Regular Application

		CLAIMS AS FILED			
Claims	Number Filed	Basic Fee Allowance	Number Extra	Rate	Basic Fee 37 CFR 1.16(a) $690.00
Total Claims (37 CFR 1.16(c))	145	- 20 =	125 x	$18.00	$2,250.00
Independent Claims (37 CFR 1.16(b))	9	- 3 =	6 x	$78.00	$468.00
Multiple Dependent Claim(s), if any (37 CFR 1.16(d))			+	$260.00	$0.00

		Filing Fee Calculation					$3,408.00

8.	**Fee Payment Being Made at This Time**

	Enclosed

		Filing Fee						$3,408.00

		Recording assignment
		($40; 37 C.F.R. 1.21(h))
		(See attached "COVER SHEET FOR
		ASSIGNMENT ACCOMPANYING NEW
		APPLICATION".)					$40.00

		Total Fees Enclosed				$3,448.00

9.	**Method of Payment of Fees**

	Charge Account No. 21-0765 in the amount of $3,578.00.
	A duplicate of this transmittal is attached.

10. Authorization to Charge Additional Fees

The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 21-0765.

37 C.F.R. 1.16(a), (f) or (g) (filing fees)

37 C.F.R. 1.16(b), (c) or (d) (presentation of extra claims)

37 C.F.R. 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

37 C.F.R. 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a))

37 C.F.R. 1.17 (application processing fees)

11. Instructions as to Overpayment

Credit Account No. 21-0765.

Respectfully submitted,

SIGNATURE OF PRACTITIONER

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SPECIFICATION

(Sprint Docket 1264)

5

TO ALL WHOM IT MAY CONCERN:

Be it known that I, Bryce A. Jones, citizen of the United States of America and

resident of 4824 West 121st, Overland Park, KS 66209, have invented the methods and

10   systems described in the following specification entitled:

METHOD AND APPARATUS FOR PROCESSING
WEB CALLS IN A WEB CALL CENTER

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METHOD AND APPARATUS FOR PROCESSING
WEB CALLS IN A WEB CALL CENTER

5   RELATED APPLICATIONS

Not applicable

10   FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

15   MICROFICHE APPENDIX

Not applicable

20   BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The invention is related to the field of Internet systems, and in particular, to a system that processes web calls in a web call center.

25

2. DESCRIPTION OF THE PRIOR ART

Current call centers require numerous service agents to answer traditional voice calls from customers. The call centers typically route the voice calls to the next available agent based on numerous criteria such as the time of day, the specific day, language preference, and the service agent's ability to handle the call. If no service agent is available, the call center places the voice call in a queue with other voice calls. For calls in the queue, the call center provides a variety of advertising messages or audio entertainment in order to prevent call abandonment. Once the next service agent becomes available, the call center routes the voice call with the highest priority in the queue to the service agent.

Call center companies now have a new medium for interaction with their call center customers with the expansion of the Internet. With the introduction of web

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browsers, the number of Internet users along with the number of companies selling their product or services over the Internet continue to grow. Companies target individual Internet users by placing "cookies" on the users' computers. These "cookies" provide a variety of marketing information to assist companies in various tasks such as pinpointing

5   customers and providing precise marketing campaigns. Companies also provide chat rooms for users to discuss various subjects. Companies that provide chat room services control the number of users in the chat room and queue users waiting to enter the chat room. The Internet browser presents the position of the users in the queue to the user through Hyper Text Markup Language. Besides chat rooms, text e-mails, and web

10   browsing, the Internet is rapidly expanding towards new types of communication such as video conferencing and voice calls.

A web call is an Internet session for exchanging information using call treatment or videoconferencing treatment. An example of call treatment is the H.323 standard by the International Telecommunications Union – Telecommunications (ITU-T). Currently,

15   companies provide web call centers to handle these web calls. A gateway converts the web call into a traditional voice call. Then an automatic call distributor (ACD) routes the voice call to service agents at the call center. If no service agent is available, the ACD routes the call to a queue server to queue the call with other calls waiting for available service agents. The ACD also plays a recorded message to the voice call or routes the call

20   to a voice response unit (VRU) that plays the recorded message to the voice call.

The lack of call processing for web calls is a problem. Call processing such as routing, queuing, and messaging is needed to better handle immediate response, language preferences, deterrence of web call abandonment, and targeted marketing campaigns.

25   SUMMARY OF THE INVENTION

The invention solves the above problem by providing web call processing for web call centers. The web call processing comprises routing, queuing, and/or provision of web service applications for web calls. For routing, the invention receives a call request message. In response to receiving the call request message, the invention identifies a web

30   call center resource. The invention then generates and transmits a routing instruction to

route the web call to the web call center resource. In an alternative embodiment of the invention, the invention routes the web call to the web call center resource after identifying the web call center resource.

For queuing, the invention receives a call request message for a web call. The invention then determines whether any web call center resource is available to handle the web call in response to receiving the call request message. The invention then transfers a web call indicator to a web call queue in response to the determination that all web call center resources are unavailable.

For web service applications, the invention receives a call request message for the web call. The invention then identifies the web service application for the web call. After identifying the web service application, the invention generates and transmits an instruction to provide the web service application to the web call. In alternative embodiments of the invention, the invention provides the web service application to the web call after identifying the web service application.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a system level block diagram in an example of the invention.

FIG. 2 is a flow chart for routing web calls in an example of the invention.

FIG. 3 is a flow chart for queuing web calls in an example of the invention.

FIG. 4 is a flow chart for providing web call applications in an example of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGS. 1-4 disclose one embodiment of the invention, but the invention is not restricted to the configuration provided below. Those skilled in the art will appreciate numerous variations in call center system configuration and operation that are within the scope of the invention. Those skilled in the art will also appreciate how the principles illustrated in this example can be used in other examples of the invention. A particular reference number in one figure refers to the same element in all of the other figures.

FIG. 1 depicts a system level block diagram in an example of the invention. A communication device 102 is connected to a public Internet network 104. A web call center 106 is comprised of a router/firewall 108, a web call server 110, an Internet conferencing server 112, a bus 114, and a web call center resource 120. The web call

5   center resource 120 is comprised of a web call center agent 122 and a telephone 124. The router/firewall 108 is connected to the public Internet network 104 and the bus 114. The bus 114 is connected to the web call server 110, the Internet conferencing server 112, the web call center agent 122, and the telephone 124.

The communication device 102 is any device that transmits call request messages

10   and exchanges information through a web call. The web call is an Internet session for exchanging information using call treatment or videoconferencing treatment. An example of a communication device is a personal computer. In various embodiments of the invention, the communication device uses a variety of software programs such as Internet web browsers and Microsoft's NetMeeting.

15   The public Internet network 104 is any Internet network device or group of Internet network devices that exchange call request messages and information through a web call between the communication device 102 and the web call center 106. Some examples of devices in the public Internet network 104 are switches, routers, and gateways.

20   The web call server 110 is any system that receives call request messages and processes the call request message to provide call processing for web calls. Some examples of call processing for web calls are routing, queuing, and providing web service applications. The web call center resource 120 is any device or group of devices that exchange information through web calls with the communication device 102 via the

25   public Internet network 104 and the router/firewall 108. The router/firewall 108 is a conventional device that typically provide routing and security. The Internet conferencing server 112 also is a conventional device that provides the ability for an Internet conference call.

FIG. 2 depicts a flow chart for routing web calls in an example of the invention.

30   FIG. 2 begins at step 200. In step 202, the web call server 110 receives a call request

message originating from the communication device 102. The call request message is any message or signaling used to begin the web call. In some embodiments of the invention, the call request message is the web call itself. An example of the call request message is a Get document in Hyper Text Transfer Protocol (HTTP).

5   In step 204, the web call server 110, identifies the available web call center resource 120 in response to receiving the call request message. In other embodiments of the invention, the web call server 110 identifies the available web call center resource 120 based upon information stored in a cookie or a digital certificate. Those skilled in the art understand the use of cookies and digital certificates to identify customers and store

10   information about the customer. The web call server 110 may identify the available web call center resource 120 based upon information entered by the caller. In various embodiments of the invention, the web call server 110 identifies the available web call center resource 120 based upon an Internet Protocol address, a domain name, a time of day, a day of the week, a day of the year, billing information of the call, a past sales

15   history of the caller, a language preference of the caller, least busy agent, least congested route, class of service, quality of service, and/or caller profile information.

After the web call server 110 identifies the available web call center resource 120, the web call server 110 transmits an instruction for the communication device 102 to route the web call to the web call center resource 120 in step 206. One example of the

20   instruction to route the web call to the web call center resource 120 is a redirect request in HTTP indicating the web call center resource 120. In another example, the redirection may also occur using a Network Address Translation (NAT). In alternative embodiments of the invention, the web call server 110 routes the web call to the web call center resource 120 in step 206. After the web call server 110 routes the web call, the web call

25   server 110 checks if the web call server 110 received a redirect instruction in step 208. The redirect instruction would be any message or signaling for redirecting the web call to another web call center resource. For example, the caller may need to talk to the billing department after talking with a sales agent at the web call center. If the web call server 110 received the redirect instruction, the web call server 110 returns to step 204 to

30   identify the next available web call center resource 120 that could handle the web call. If

the web call server 110 did not receive the redirect instruction, the web call server 110 finishes the routing process at step 210.

FIG. 3 depicts a flow chart for queuing web calls in an example of the invention. FIG. 3 begins at step 300. In step 302, the web call server 110 receives the call request
5   message originating from the communication device 102. In step 304, the web call server 110 determines if the web call center resource 120 is available to handle the web call in response to receiving the call request message.

In other embodiments of the invention, the web call server 110 determines if the web call center resource 120 is available to handle the web call based upon information
10   stored in a cookie or a digital certificate. The web call server 110 may determine if the web call center resource 120 is available to handle the web call 120 based upon information entered by the caller. In various embodiments of the invention, the web call server 110 determines if the web call center resource 120 is available to handle the web call based upon an Internet Protocol address, a domain name, a time of day, a day of the
15   week, a day of the year, billing information of the call, a past sales history of the caller, a language preference of the caller, least busy agent, least congested route, class of service, quality of service, and/or caller profile information.

If the web call center resource 120 is available, the web call server 110 proceeds to step 312 to route the web call. If no web call center resource 120 is available, the web
20   call server 110 transfers a web call indicator to the web queue in step 306. The web call indicator is any message or signal that is indicative of the web call. In some embodiments of the invention, the web call indicator is the call request message or even the web call itself. In step 308, the web call server 110 arranges the order in the web queue by priority. In different embodiments of the invention, the priority of the web queue could be based
25   on variety of queuing theories such as first in first out, last in first out, or based on priority level of the web call. The web call server 110 then determines if the web call center resource 120 is available to handle the web call in step 310.

If the web call server 110 determines that no web call center resource 120 is available, the web call server 110 returns to step 308 to arrange the order in the web
30   queue. If the web call server 110 determines that the web call center resource 120 is

available, the web call server 110 proceeds to step 312. In step 312, the web call server 110 identifies the available web call center resource 120 and generates and transmits an instruction to route the web call with the highest priority to the available web call center resource 120. The web call server 110 finishes the queuing process at step 314.

5   FIG. 4 depicts a flow chart for providing web call applications in an example of the invention. FIG. 4 begins at step 400. In step 402, the web call server 110 receives a call request message originating from the communication device 102. The web call server 110 then identifies a web service application to provide for the caller. The web service application is any type of messaging or interactive application that is provided to the
10   caller. Some examples of web service applications are advertising messaging, selecting a language preference, servicing a customer account (i.e. checking balances), shopping, and providing product or service information.

In other embodiments of the invention, the web call server 110 identifies a web service application to provide for the caller based upon information stored in a cookie or
15   a digital certificate. Those skilled in the art understand the use of cookies and digital certificates to identify customers and store information about the customer. The web call server 110 may identify a web service application to provide for the caller based upon information entered by the caller. In various embodiments of the invention, the web call server 110 identifies a web service application to provide for the caller based upon an
20   Internet Protocol address, a domain name, a time of day, a day of the week, a day of the year, billing information of the call, a past sales history of the caller, a language preference of the caller, and/or caller profile information.

Once the web call server 110 identifies the web service application, the web call server 110 transmits an instruction to provide the web service application in step 406.
25   During the provision of the web service application, if the caller requests a redirect to the web call center resource in step 408, the web call server 110 identifies the next available web call center resource 120 in step 410. If the caller does not request the redirect, the web service application continues to be provided to the caller or the web call server 110 identifies a new web service application in step 404. After the web call server 110
30   identifies the web call center resource in step 410, the web call server 110 transmits an

instruction to route the web call to the available web call center resource 120. The web call server 110 finishes the provision of web service applications at step 414.

In other embodiments of the invention, the web call center resource 120 transmits a request for a conference call to the Internet conferencing server 112. The Internet conferencing server 112 then processes the request and commences an Internet conference with another call.

The above-described elements can be comprised of instructions that are stored on storage media. The instructions can be retrieved and executed by a processor. Some examples of instructions are software, program code, and firmware. Some examples of storage media are memory devices, tape, disks, integrated circuits, and servers. The instructions are operational when executed by the processor to direct the processor to operate in accord with the invention. Those skilled in the art are familiar with instructions, processor, and storage media.

Those skilled in the art will appreciate variations of the above-described embodiments that fall within the scope of the invention. As a result, the invention is not limited to the specific examples and illustrations discussed above, but only by the following claims and their equivalents.

CLAIMS:

We claim:

1. A method for processing a web call comprising:

receiving a call request message for the web call;

identifying a web call center resource in response to receiving the call request message; and

5   generating and transmitting a routing instruction to route the web call to the web call center resource.

2. The method of claim 1 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

10

3. The method of claim 1 wherein identifying the web call center resource is based upon information stored in a cookie.

4. The method of claim 1 wherein identifying the web call center resource is
15   based upon information stored in a digital certificate.

5. The method of claim 1 wherein identifying the web call center resource is based upon caller entered information.

20   6. The method of claim 1 wherein identifying the web call center resource is based upon an Internet Protocol address.

7. The method of claim 1 wherein identifying the web call center resource is based upon a domain name.

25

8. The method of claim 1 wherein identifying the web call center resource is based upon a time of day.

9. The method of claim 1 wherein identifying the web call center resource is
30   based upon a day.

10. The method of claim 1 wherein identifying the web call center resource is based on the least busy agent.

5   11. The method of claim 1 wherein identifying the web call center resource is based on the least congested route.

12. The method of claim 1 wherein identifying the web call center resource is based on the class of service.

10

13. The method of claim 1 wherein identifying the web call center resource is based on the quality of service.

14. A software product for processing a web call comprising:

15   web call server software operational when executed by a processor to direct the processor to receive a call request message for the web call, identify a web call center resource in response to receiving the call request message, and generate and transmit a routing instruction to route the web call to the web call center resource; and

a software storage medium operational to store the web call server software.

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15. The software product of claim 14 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

16. The software product of claim 14 wherein the web call server software

25   operational when executed by the processor to direct the processor to identify a web call center resource is based upon information stored in a cookie.

17. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call

30   center resource is based upon information stored in a digital certificate.

18. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon caller entered information.

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19. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon an Internet Protocol address.

10   20. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon a domain name.

21. The software product of claim 14 wherein the web call server software

15   operational when executed by the processor to direct the processor to identify a web call center resource is based upon a time of day.

22. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call

20   center resource is based upon a day.

23. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon the least busy agent.

25

24. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon the least congested route.

25. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon the class of service.

5   26. The software product of claim 14 wherein the web call server software operational when executed by the processor to direct the processor to identify a web call center resource is based upon the quality of service.

27. A web call server for processing a web call comprising:

10   a processor configured to receive a call request message for the web call, identify a web call center resource in response to receiving the call request message, and generate and transmit a routing instruction to route the web call to the web call center resource; and

an interface configured to transfer the call request message for the web call to the
15 processor and transfer the routing instruction from the processor.

28. The web call server of claim 27 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

20   29. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon information stored in a cookie.

30. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon information stored in a digital certificate.

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31. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon caller entered information.

32. The web call server of claim 27 wherein the processor configured to identify
30 the web call center resource is based upon an Internet Protocol address.

33. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon a domain name.

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34. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon a time of day.

35. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon a day.

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36. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon the least busy agent.

37. The web call server of claim 27 wherein the processor configured to identify

15   the web call center resource is based upon the least congested route.

38. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon the class of service.

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39. The web call server of claim 27 wherein the processor configured to identify the web call center resource is based upon the quality of service.

40. A method of queuing a web call comprising:

receiving a call request message for the web call;

25   determining whether any web call center resource is available to handle the web call in response to receiving the call request message; and

transferring a web call indicator to a web call queue in response to the determination that all web call center resources are unavailable.

41. The method of claim 40 wherein the web call indicator comprises the call request message.

42. The method of claim 40 wherein the web call indicator comprises the web

5   call.

43. The method of claim 40 further comprising arranging an order in the web queue by priority.

10   44. The method of claim 40 further comprising arranging an order in the web queue by priority.

45. The method of claim 44 wherein the priority comprises first in first out.

15   46. The method of claim 44 wherein the priority comprises last in first out.

47. The method of claim 44 wherein the priority comprises a priority level.

48. The method of claim 40 further comprising:

20   identifying a web call center resource in response to the determination that the web call center resources is available; and

generating and transmitting a routing instruction to route the web call from the web queue to the web call center resource.

25   49. The method of claim 40 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

50. The method of claim 40 wherein determining whether any web call center resource is available is based upon information stored in a cookie.

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51. The method of claim 40 wherein determining whether any web call center resource is available is based upon information stored in a digital certificate.

52. The method of claim 40 wherein determining whether any web call center resource is available is based upon caller entered information.

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53. The method of claim 40 wherein determining whether any web call center resource is available is based upon an Internet Protocol address.

54. The method of claim 40 wherein determining whether any web call center resource is available is based upon a domain name.

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55. The method of claim 40 wherein determining whether any web call center resource is available is based upon a time of day.

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56. The method of claim 40 wherein determining whether any web call center resource is available is based upon a day.

57. The method of claim 40 wherein determining whether any web call center resource is available is based upon the least busy agent.

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58. The method of claim 40 wherein determining whether any web call center resource is available is based upon the least congested route.

59. The method of claim 40 wherein determining whether any web call center resource is available is based upon the class of service.

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60. The method of claim 40 wherein determining whether any web call center resource is available is based upon the quality of service.

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61. A software product for queuing a web call comprising:

web call server software operational when executed by a processor to direct the processor to receive a call request message for the web call, determine whether any web call center resource is available to handle the web call in response to receiving the call request message, and transfer a web call indicator to a web call queue in response to the determination that all web call center resources are unavailable; and

a software storage medium operational to store the web call server software.

62. The software product of claim 61 wherein the web call indicator comprises the call request message.

63. The software product of claim 61 wherein the web call indicator comprises the web call.

64. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to arrange an order in the web queue by priority.

65. The software product of claim 64 wherein the priority comprises first in first out.

66. The software product of claim 64 wherein the priority comprises last in first out.

67. The software product of claim 64 wherein the priority comprises a priority level.

68. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to identify a web call center resource in response to the determination that all web call center resources are

unavailable and generate and transmit a routing instruction to route the web call from the web queue to the web call center resource.

69. The software product of claim 61 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

70. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon information stored in a cookie.

71. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon information stored in a digital certificate.

72. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon caller entered information.

73. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon an Internet Protocol address.

74. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon a domain name.

75. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon a time of day.

76. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon a day of the week.

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77. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon the least busy agent.

10   78. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon the least congested route.

79. The software product of claim 61 wherein the web call server software is
15   operational when executed by the processor to direct the processor to determine whether any web call center resource is available is based upon the class of service.

80. The software product of claim 61 wherein the web call server software is operational when executed by the processor to direct the processor to determine whether
20   any web call center resource is available is based upon the quality of service.

81. A web call server for queuing a web call comprising:

a processor configured to receive a call request message for the web call, determine whether any web call center resource is available to handle the web call in
25   response to receiving the call request message, and transfer the web call indicator to a web call queue in response to the determination that all web call center resources are unavailable; and

an interface configured to transfer the call request message to the processor and transfer an instruction to transfer the web call to a web call queue from the processor.

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82. The web call server of claim 81 wherein the web call indicator comprises the call request message.

83. The web call server of claim 81 wherein the web call indicator comprises the

5   web call.

84. The web call server of claim 81 wherein the processor is configured to arrange an order in the web queue by priority.

10   85. The web call server of claim 84 wherein the priority comprises first in first

out.

86. The web call server of claim 84 wherein the priority comprises last in first out.

15   87. The web call server of claim 84 wherein the priority comprises a priority level.

88. The web call server of claim 81 wherein the processor is configured to identify a web call center resource in response to the determination that all web call center resources are unavailable and generate and transmit a routing instruction to route

20   the web call from the web queue to the web call center resource and wherein the interface is configured to transfer the routing instruction from the processor.

89. The web call server of claim 81 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

25

90. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon information stored in a cookie.

91. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon information stored in a digital certificate.

5   92. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon caller entered information.

93. The web call server of claim 81 wherein the processor configured to determine 10   whether any web call center resource is available is based upon an Internet Protocol address.

94. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon a domain name.

15

95. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon a time of day.

96. The web call server of claim 81 wherein the processor configured to determine 20   whether any web call center resource is available is based upon a day.

97. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon the least busy agent.

25   98. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon the least congested route.

99. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon the class of service.

30

100. The web call server of claim 81 wherein the processor configured to determine whether any web call center resource is available is based upon the quality of service.

5   101. A method of providing a web service application to a web call comprising:

receiving a call request message for the web call;

identifying the web service application for the web call in response to the call request message; and

generating and transmitting an instruction to provide the web service application

10   to the web call.

102. The method of claim 101 wherein the web service application comprises providing a message for the web call.

15   103. The method of claim 101 wherein the web service application comprises an interactive application.

104. The method of claim 103 wherein the interactive application comprises selecting a language preference.

20

105. The method of claim 103 wherein the interactive application comprises servicing a customer account.

106. The method of claim 103 wherein the interactive application comprises

25   shopping.

107. The method of claim 103 wherein the interactive application comprises providing product or service information.

108. The method of claim 101 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

109. The method of claim 101 wherein identifying the web service application for

5   the web call is based upon information stored in a cookie.

110. The method of claim 101 wherein identifying the web service application for the web call is based upon information stored in a digital certificate.

10   111. The method of claim 101 wherein identifying the web service application for the web call is based upon caller entered information.

112. The method of claim 101 wherein identifying the web service application for the web call is based upon an Internet Protocol address.

15

113. The method of claim 101 wherein identifying the web service application for the web call is based upon a domain name.

114. The method of claim 101 wherein identifying the web service application for

20   the web call is based upon a time of day.

115. The method of claim 101 wherein identifying the web service application for the web call is based upon a day.

25   116. A software product for providing a web service application to a web call comprising:

web call server software operational when executed by a processor to direct the processor to receive a call request message for the web call, identify the web service application for the web call in response to the call request message, and generate and

30   transmit an instruction to provide the web service application to the web call; and

a software storage medium operational to store the web call server software.

117. The software product of claim 116 wherein web service application comprises providing a message for the web call.

5

118. The software product of claim 116 wherein the web service application comprises an interactive application.

119. The software product of claim 118 wherein the interactive application
10   comprises selecting a language preference.

120. The software product of claim 118 wherein the interactive application comprises servicing a customer account.

15   121. The software product of claim 118 wherein the interactive application comprises shopping.

122. The software product of claim 118 wherein the interactive application comprises providing product or service information.
20

123. The software product of claim 116 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

124. The software product of claim 116 wherein the web call server software
25   operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon information stored in a cookie.

125. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web

service application for the web call is based upon information stored in a digital certificate.

126. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon caller entered information.

127. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon an Internet Protocol address.

128. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon a domain name.

129. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon a time of day.

130. The software product of claim 116 wherein the web call server software operational when executed by the processor to direct the processor to identify the web service application for the web call is based upon a day.

131. A web call server for providing a web service application to a web call comprising:

a processor configured to receive a call request message for the web call, identify the web service application for the web call in response to the call request message, generate and transmit an instruction to provide the web service application to the web call; and

an interface configured to transfer the call request message for the web call to the processor and transfer the instruction to provide the web service application to the web call from the processor.

5   132. The web call server of claim 131 wherein web service application comprises providing a message for the web call.

133. The web call server of claim 131 wherein the web service application comprises an interactive application.

10

134. The web call server of claim 133 wherein the interactive application comprises selecting a language preference.

135. The web call server of claim 133 wherein the interactive application
15   comprises servicing a customer account.

136. The web call server of claim 133 wherein the interactive application comprises shopping.

20   137. The web call server of claim 133 wherein the interactive application comprises providing product or service information.

138. The web call server of claim 131 wherein the call request message is a Get document request in Hyper Text Transfer Protocol.

25

139. The web call server of claim 131 wherein the processor configured to identify the web service application for the web call is based upon information stored in a cookie.

140. The web call server of claim 131 wherein the processor configured to identify the web service application for the web call is based upon information stored in a digital certificate.

5   141. The web call server of claim 131 wherein the processor configured to identify the web service application for the web call is based upon caller entered information.

142. The web call server of claim 131 wherein the processor configured to

10   identify the web service application for the web call is based upon an Internet Protocol address.

143. The web call server of claim 131 wherein the processor configured to identify the web service application for the web call is based upon a domain name.

15

144. The web call server of claim 131 wherein the processor configured to identify the web service application for the web call is based upon a time of day.

145. The web call server of claim 131 wherein the processor configured to

20   identify the web service application for the web call is based upon a day.

ABSTRACT

A web call server provides call processing for web calls. The call processing for web calls comprises routing, queuing, and/or provision of web service applications. For routing, the web call server receives a call request message. In response to receiving the

5   call request message, the web call server identifies a web call center resource. The web call server then generates and transmits a routing instruction to route the web call to the web call center resource. For queuing, the web call server receives a call request message for a web call. The web call server then determines whether any web call center resource is available to handle the web call in response to receiving the call request message. The

10   web call server then transfers a web call indicator to a web call queue in response to the determination that all web call center resources are unavailable. For web service applications, the web call server receives a call request message for the web call. The web call server then identifies the web service application for the web call. After identifying the web service application, the web call server generates and transmits an instruction to

15   provide the web service application to the web call.

COM
DEVICE

— 102

PUBLIC
INTERNET
NETWORK

— 104

WEB CALL CENTER

— 106

ROUTER/
FIREWALL

— 108

114

WEB
CALL
SERVER

— 110

INTERNET
CONF
SERVER

— 112

120

WEB
CALL
CENTER
AGENT

— 122

PHONE

— 124

WEB CALL CENTER RESOURCE

FIG. 1

```
        ┌─────────────────────────┐
        │          START          │───── 200
        └─────────────────────────┘
                     │
                     ▼
        ┌─────────────────────────┐
        │     RECEIVE CALL REQUEST │───── 202
        │         MESSAGE          │
        └─────────────────────────┘
                     │
                     ▼
        ┌─────────────────────────┐───── 204
        │   IDENTIFY NEXT AVAILABLE│◄──────┐
        │     WEB CALL CENTER      │       │
        │        RESOURCE          │       │
        └─────────────────────────┘       │
                     │                     │
                     ▼                     │
        ┌─────────────────────────┐       │
        │  TRANSMIT INSTRUCTION TO │       │
        │   ROUTE CALL TO NEXT     │       │
        │   AVAILABLE WEB CALL     │       │
        │     CENTER RESOURCE      │       │
        └─────────────────────────┘       │
                     │        206          │
                     ▼                     │
              ╱───────────╲                │
            ╱               ╲              │
          ╱      REDIRECT     ╲────────────┘
          ╲      REQUEST?     ╱
            ╲               ╱   208
              ╲───────────╱
                     │
                     ▼
        ┌─────────────────────────┐
        │           END           │───── 210
        └─────────────────────────┘
```

FIG. 2

```
                    ┌─────────────────┐
                    │      START      │── 300
                    └─────────────────┘
                             │
                             ▼
                    ┌─────────────────┐
                    │ RECEIVE CALL    │── 302
                    │ REQUEST MESSAGE │
                    └─────────────────┘
                             │
                             ▼
                         ╱───────╲
                       ╱ DETERMINE ╲        YES
                      ╱ IF A WEB CALL╲──────────────┐
                      ╲ CENTER RESOURCE╱            │
                       ╲ IS AVAILABLE ╱── 304        │
                         ╲───────╱                   │
                             │ NO                     │
                             ▼                        │
                    ┌─────────────────┐               │
                    │ TRANSFER WEB    │── 306          │
                    │ CALL INDICATOR  │               │
                    │ TO WEB CALL     │               │
                    │ QUEUE           │               │
                    └─────────────────┘               │
                             │                        │
                             ▼                        │
           ┌────────▶┌─────────────────┐              │
           │         │ ARRANGE ORDER   │── 308          │
           │         │ IN QUEUE BY     │               │
           │         │ PRIORITY        │               │
           │         └─────────────────┘               │
           │                 │                         │
           │                 ▼                         │
           │             ╱───────╲                     │
           │  NO       ╱ DETERMINE ╲                    │
           └──────────╱ IF A WEB CALL╲                  │
                      ╲ CENTER RESOURCE╱                │
                       ╲ IS AVAILABLE ╱── 310            │
                         ╲───────╱                      │
                             │ YES                       │
                             ▼                          │
                    ┌─────────────────┐                 │
                    │ TRANSMIT        │── 312             │
                    │ INSTRUCTION TO  │◀────────────────┘
                    │ ROUTE CALL TO   │
                    │ AVAILABLE WEB   │
                    │ CALL CENTER     │
                    │ RESOURCE        │
                    └─────────────────┘
                             │
                             ▼
                    ┌─────────────────┐
                    │      END        │── 314
                    └─────────────────┘
```

FIG. 3

```
                    ┌──────────────────────┐
                    │        START         │──── 400
                    └──────────────────────┘
                               │
                               ▼
                    ┌──────────────────────┐
                    │  RECEIVE CALL REQUEST │──── 402
                    │       MESSAGE         │
                    └──────────────────────┘
                               │
                               ▼ ◄──────────────────────┐
                    ┌──────────────────────┐            │
                    │  IDENTIFY WEB SERVICE │──── 404    │
                    │     APPLICATION       │            │
                    └──────────────────────┘            │
                               │                        │
                               ▼                        │
                    ┌──────────────────────┐            │
                    │ TRANSMIT INSTRUCTION TO│── 406     │
                    │  PROVIDE WEB SERVICE  │            │
                    │     APPLICATION       │            │
                    └──────────────────────┘            │
                               │                        │
                               ▼                        │
                         ╱──────────╲          NO       │
                        ╱   REDIRECT  ╲─────────────────┘
                        ╲   REQUEST?  ╱
                         ╲──────────╱  408
                               │ YES
                               ▼
                    ┌──────────────────────┐
                    │ IDENTIFY NEXT AVAILABLE│── 410
                    │   WEB CALL CENTER     │
                    │      RESOURCE         │
                    └──────────────────────┘
                               │
                               ▼
                    ┌──────────────────────┐
                    │ TRANSMIT INSTRUCTION TO│── 412
                    │  ROUTE CALL TO NEXT   │
                    │  AVAILABLE WEB CALL   │
                    │   CENTER RESOURCE     │
                    └──────────────────────┘
                               │
                               ▼
                    ┌──────────────────────┐
                    │         END           │──── 414
                    └──────────────────────┘
```
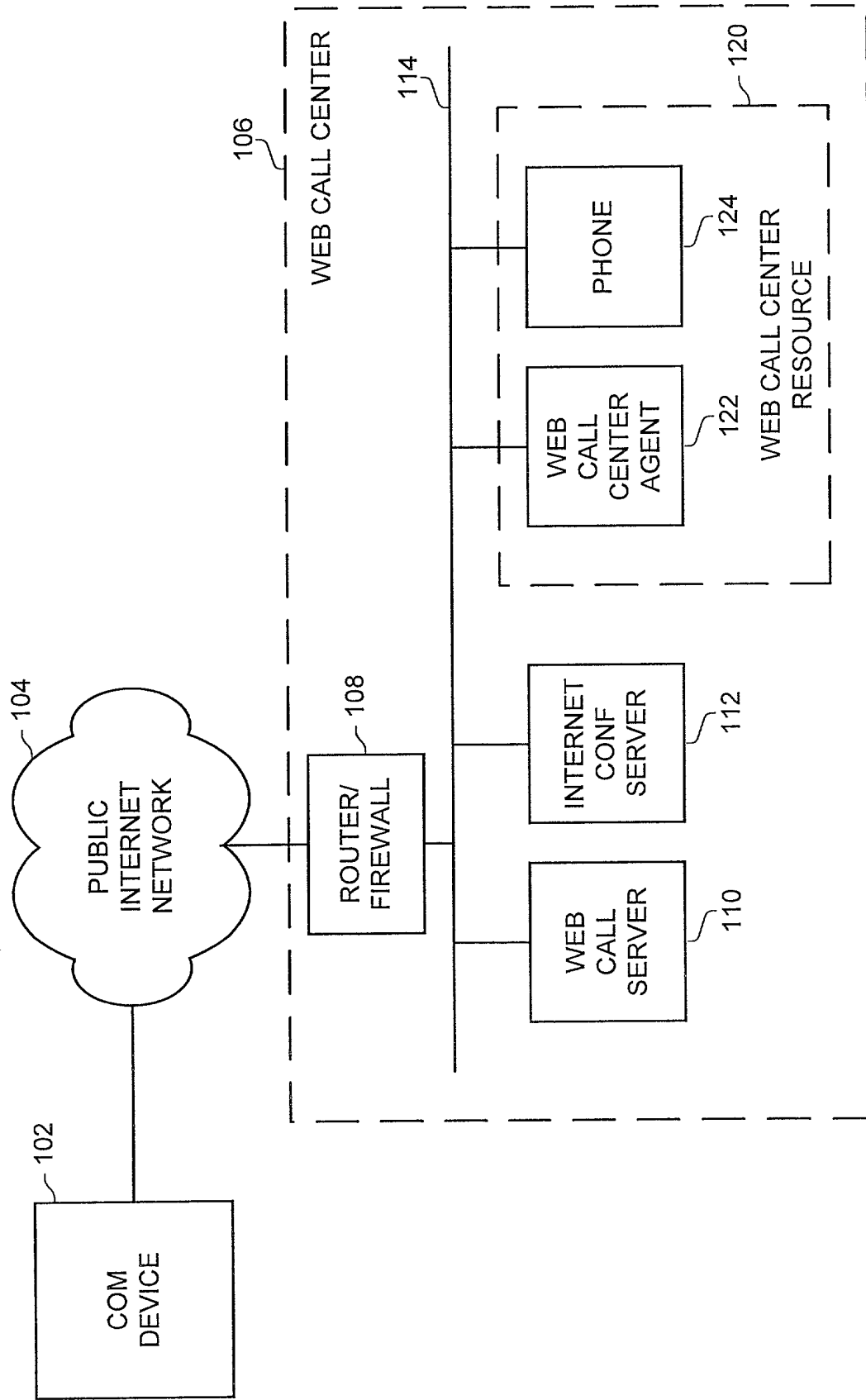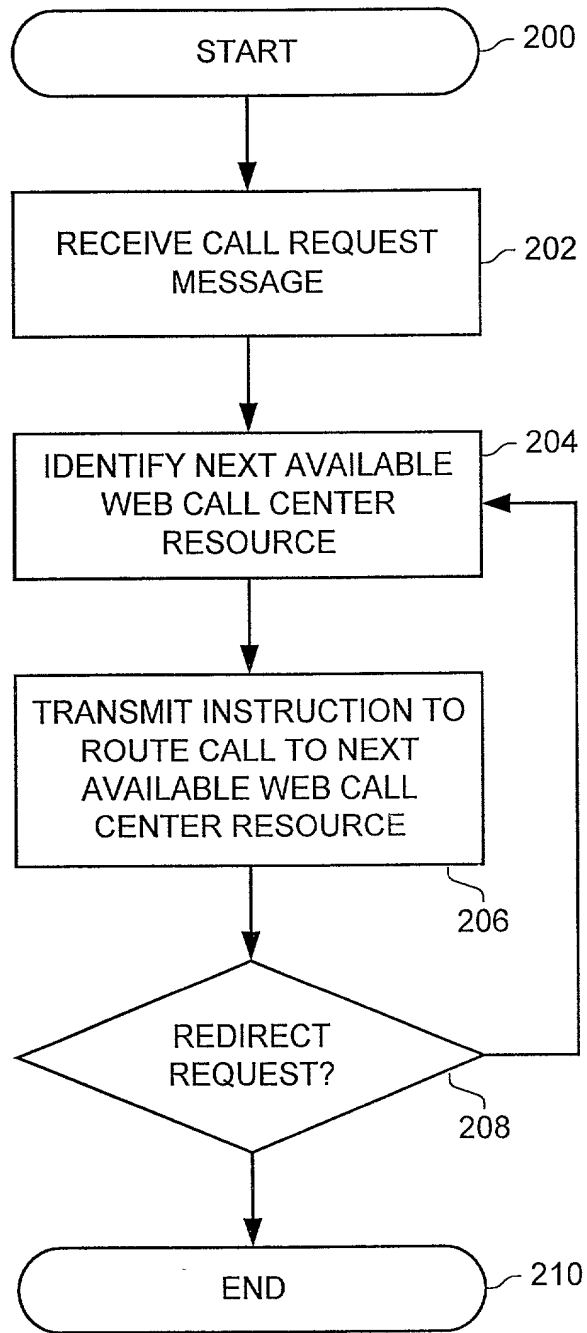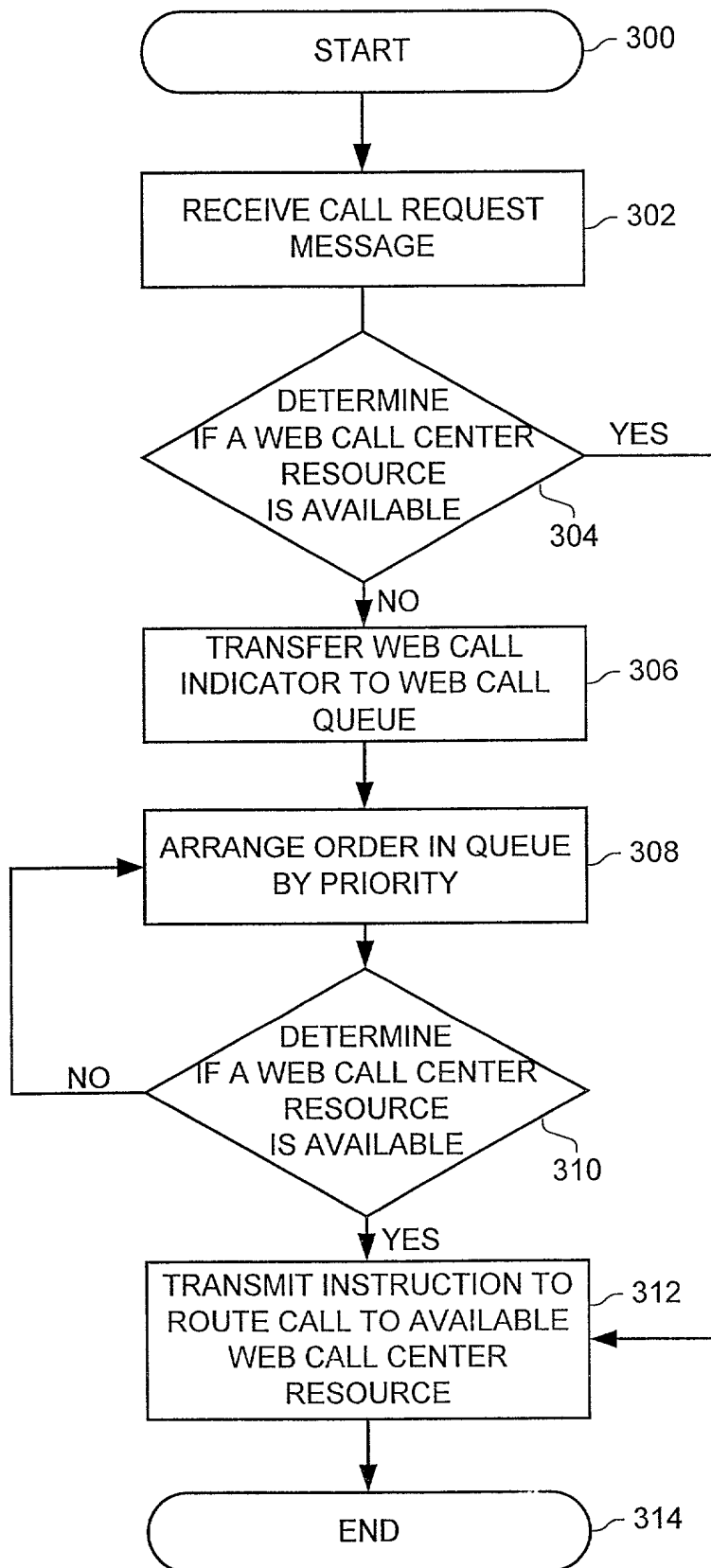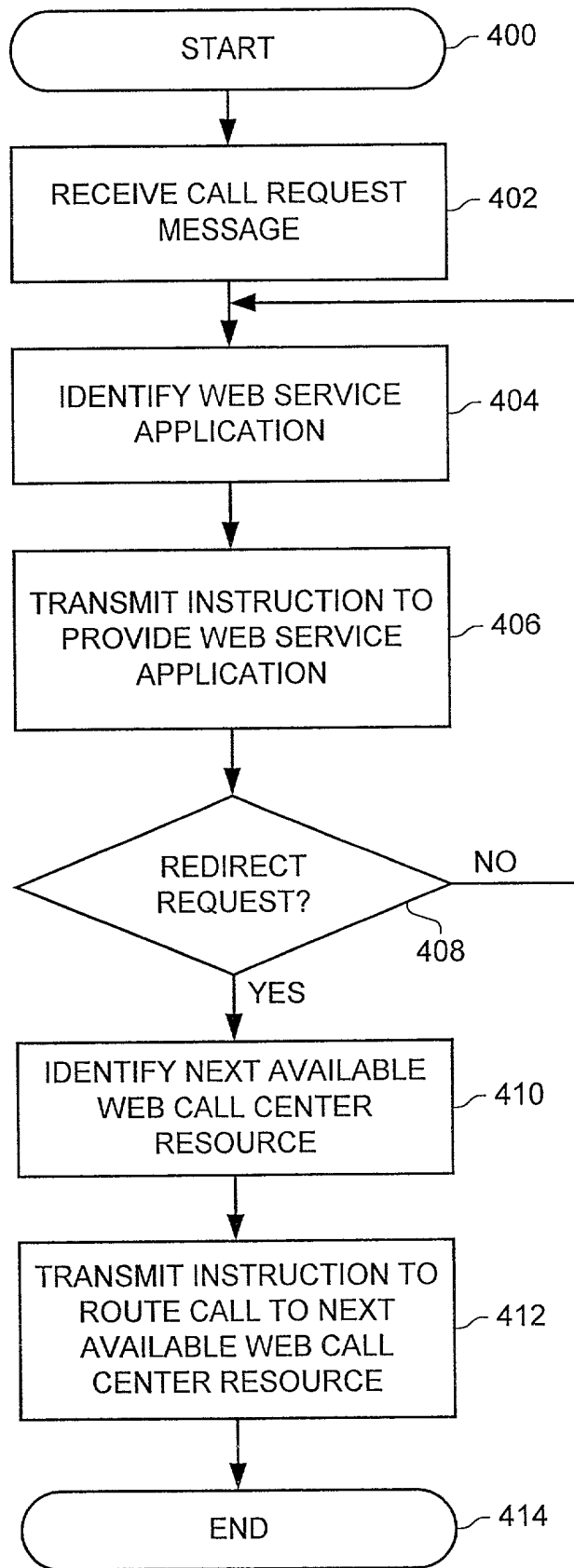
FIG. 4

DECLARATION AND POWERS OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship is as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled "METHOD AND APPARATUS FOR PROCESSING WEB CALLS IN A WEB CALL CENTER" the specification of which was filed on _____, as Application No. _____ and was amended herewith or, if not identified here by filing date and application number, is attached hereto. I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 CFR 1.56(a). I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate by me or my representatives or assigns for this invention having a filing date before that of the application on which priority is claimed:

Application No. _____ in _____ on _____ priority claimed ( ) Yes ( ) No
Application No. _____ in _____ on _____ priority claimed ( ) Yes ( ) No
Application No. _____ in _____ on _____ priority claimed ( ) Yes ( ) No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Number)	(Filing Date)	(Status-patented, pending, abandoned)
(Application Number)	(Filing Date)	(Status-patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. I hereby appoint, individually and collectively, the following as my/our attorney or agent with full power of substitution and revocation, to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith:

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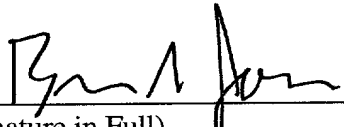
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